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ABSTRACT

This paper describes a quantitative approach to the study of the culture and improvement of schools. The School Cultural Elements Questionnaire (SCEQ) was developed to measure the aspects of the interpersonal relationships among school staff, which were expected to affect schools' instructional programs. The SCEQ measures six elements of school culture that are conducive to improved student-learning outcomes, including teacher efficacy, emphasis on learning, collegiality, collaboration, shared planning, and transformational leadership. Data were gathered in two Western Australia secondary schools. The SCEQ was administered to teachers, and interviews were conducted with one-third of the teachers (in the English, mathematics, science, and social-science departments) at each school. The study found statistically significant differences between the cultures of the two schools for three of the six cultural elements. When administered one year later, the questionnaire data showed that one school underwent major cultural change with statistically significant changes in three of the six elements. By measuring aspects of schools related to their educative purposes, the SCEQ provides information to assess the readiness of schools for improvement, design improvement programs, and monitor the impact of improvement initiatives. (Contains 11 references and 8 figures.) (LMI)

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SCHOOL CULTURE: A QUANTITATIVE PERSPECTIVE ON A SUBJECTIVE PHENOMENON

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Paper prepared for presentation at the annual meeting of the American Educational Research Association (AERA), Chicago, March 1997.

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ABSTRACT

This paper describes a quantitative approach to the study of the culture and improvement of schools. The School Cultural Elements Questionnaire (SCEQ) was developed to measure aspects of the inter-personal relationships amongst school staff which were expected to be of consequence to a school's instructional programme. The SCEQ solicits the perceptions of teachers about the values and norms which characterise the culture of their school. The theoretical framework of the SCEQ is a six element structure comprising teacher efficacy, an emphasis on learning, collegiality, collaboration, shared planning and transformational leadership. These six cultural elements were identified in school effectiveness literature as attributes of schools conducive to improved student learning outcomes.

The SCEQ was administered in two Western Australia secondary schools in an investigation of school culture, faculty based sub-cultures and cultural stability. The quantitative data were validated statistically and by a concurrent interview programme. The investigation revealed statistically significant differences between the cultures of the two schools for three of the six cultural elements. The temporal stability of the culture of each school was examined by re-administration of the SCEQ one year later. In one school, the culture was essentially stable with a statistically significant change being measured for only one of the six elements. The other school underwent major cultural change with statistically significant changes in three of the six elements.

The applicability of a quantitative instrument in exploring the subjective phenomenon of school culture is evidenced by the capacity of the SCEQ to differentiate between the culture of schools and identify changes in their culture. By measuring aspects of schools related to their educative purpose, the SCEQ provides information to gauge the readiness of schools for improvement and for utilisation in the design of improvement programmes. The instrument can also be re-administered to identify the impact of improvement initiatives on the culture of schools.

INTRODUCTION

'School improvement is a systematic, sustained effort aimed at change in learning conditions and other related internal conditions in one or more schools, with the ultimate aim of accomplishing educational goals more effectively' (Hillman and Stoll, 1994, p.1). Stoll and Mortimer (1995) synthesised the research findings on school effectiveness and improvement and identified eleven factors requiring consideration in the design of school improvement programmes. These were participatory leadership, shared vision and goals, teamwork, a learning environment, emphasis on teaching and learning, high expectations, positive reinforcement, monitoring and inquiry, pupil rights and responsibilities, learning for all and partnerships and support (Stoll and Mortimer, 1995 p. 5). All eleven factors concern inter-personal behaviour within the school community which is governed by the presence of common values and norms. These common values and norms are the culture of the school, the culture of a learning community.

The phenomena of school culture can be examined from a variety of perspectives. It is suggested that these research approached can be categorised as being descriptive, effective and process oriented. Descriptive research has produced typologies of school and faculty behaviour which describe different whole-school and sub-school cultures (Fullan and Hargreaves, 1992; A. Hargreaves, 1994; D. Hargreaves, 1995; Murgatroyd, 1988). The notion of an effective school culture assumes examination of school culture in terms of the extent to which it is supportive of the educational purpose of schools. Adoption of a process orientation enables focus upon the mechanisms by which the school culture has developed, is maintained and grows (Cavanagh and Dellar, 1995; Cavanagh and Dellar 1996).

Effecting long term changes in schools requires changing the attitudes and beliefs of teachers about their professional activity (Dalin, Rolff and Kleekamp, 1993; Fullan, 1993). School improvement can be considered as a process of cultural transformation. Cavanagh (1997), placed school culture within a school improvement context.

> 'The culture of a learning community is manifested by the sharing of values and norms amongst teachers resulting in commonality of purpose and actions intended to improve the learning of students. The culture of the individual school is characterised by the perceived extent of

participation in the interactive social processes which develop, maintain and transform the culture' (Cavanagh, 1997 p. 184).

This definition combines descriptive, effective and process orientations. Identification of the specific beliefs and attitudes of the teachers within a school about their professional activity and the operations of the school can provide a description of the culture of the school. It also focuses upon the educative mission of schools and the need for the culture to be conducive to improvements in student learning outcomes. Furthermore, attention is drawn to the developmental nature of school culture and the processes which transform individual values and norms into the collective values and norms of a cohesive culture.

This paper discusses an investigation of school culture in Western Australian secondary schools. Quantitative and qualitative data were collected and utilised in an examination of the influences upon the development and transformation of school culture. The data were processed to describe the prevailing culture of schools and analysed to explain how this had developed and was changing. The major form of data collection utilised a survey type instrument and the results of instrument administration were supplemented by an interview programme. The paper briefly describes the development and refinement of the School Cultural Elements Questionnaire (SCEQ) and the interview procedures. This is followed by a case study format presentation of SCEQ and interview data on the nature, stability and contextual influences on the culture of Woodview Senior High School and Landview Senior High School.

BACKGROUND

Cavanagh and Dellar (1996) investigated the culture within Western Australian schools. The investigation utilised a conceptual framework comprising eight cultural elements which related to school effectiveness. The elements were teacher efficacy, teachers as learners, collegiality, mutual empowerment, collaboration, shared visions, school-wide planning, and transformational leadership. The School Cultural Elements Questionnaire (SCEQ) (Cavanagh and Dellar, 1996) was developed to measure the level of presence of these eight elements in schools. The instrument comprised eight scales with 32 positive form items, 32 negative form items, five point Likert response scale and an easy scoring key. Following initial administration in five schools to 245 teachers, the sample size was increased to eight schools and 422 teachers. The data were subjected to exploratory and confirmatory factor analysis which

resulted in a refined instrument with six scales and 42 items (Appendix 1, Reliability and Construct Validity of Revised SCEQ).

The original eight element conceptual framework was then modified into a six element structure. The elements were operationally defined as follows:

> **Teacher efficacy** concerns the belief of teachers in the importance of the social institution of education and the need for school growth which is grounded on pedagogical principles.
>
> **An emphasis on learning** produces a learning community in which there is a commitment to professional growth and improved outcomes for students.
>
> **Collegiality** empowers teachers to exercise professional judgements through the development of supportive inter-personal relationships.
>
> **Collaboration** is interaction between teachers in which information is shared on school operational matters including the instructional programme.
>
> **Shared planning** is a collective process whereby a common vision of the school is actualised by logical planning.
>
> **Transformational leaders** share power and facilitate a school development process that engages the human potential and commitment of teachers.

The refined version of the SCEQ was administered in two schools during 1995 and 1996. Mean scores were calculated for each of the six instrument scales as a measure of the perceived level of presence of each of the six cultural elements within the school. Mean inter-scale correlation coefficients (Spearman) were also calculated to indicate the extent of the relationships between the six elements. Previous research (Cavanagh and Dellar, 1996) had

revealed that this information was also a characteristic of individual school cultures and evidenced the contribution of specific elements to the overall culture.

Interviews were conducted with a stratified sample of staff in each school prior to the second instrument administration. One third of the teachers in the faculties of English, Mathematics, Science and Social Studies were interviewed, all of whom were present in the schools during 1995 and 1996. The interviews were of approximately 40 minutes duration and based upon the same paradigmatic framework as the SCEQ. Items in the interview schedule sought information on characteristics of school-wide culture, faculty culture and temporal stability of the cultures. Interview items included:

> Most of your life at school is spent within the faculty. Thinking back to last year, what can you tell me about how it was running then? How did this faculty fit in with what was happening around the rest of the school?
>
> In what ways has the faculty changed since last year? In what ways has the school changed since last year?
>
> It is likely that when a faculty decides to make some changes, the views and needs of people are important. Can you describe a faculty based change and the implications for how the teachers work together?
>
> Are there any changes that you would like see occur in the way people get on with each other and work together at this school? What is preventing these changes from occurring?

CASE ONE: WOODVIEW SENIOR HIGH SCHOOL

Woodview Senior High School is located in a semi-rural area in the Perth metropolitan area. In 1995 the school had 1100 students spread over five years of secondary schooling. The staff of 70 was organised around subject centred faculties. The staff turn-over from year to year is usually about 20% including an annual decrease of about 10% due to declining student enrolments. The students are from predominantly working class backgrounds and their academic level of performance is average for Western Australian secondary schools.

School Culture

Figure 1 presents the scale mean scores for the six cultural elements for Woodview SHS in 1995. The maximum possible score is 35 resulting from a score of five on the Likert scale for each of the seven items in the scale. The minimum point of the radial graph is set at 21 which is indicative of an average 'uncertain' response for the scale.. A score of 28 would indicate average 'agreement'. The range of scale values from 21 to 35 was chosen to indicate statistically significant differences. Single factor Annova analysis of variance had indicated that scale mean score differences of the order of 2.0 were statistically significant.

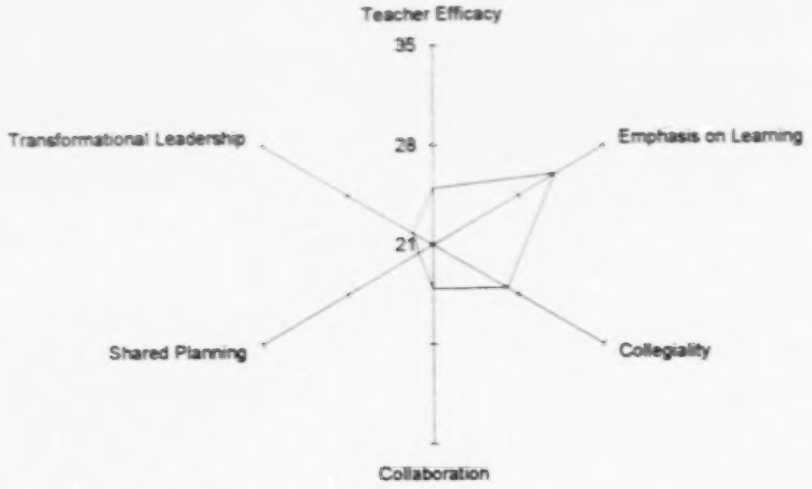

Figure 1. Woodview SHS School Culture Profile

Positive comments about teacher efficacy were made from teachers in all the four faculties in which interviews were conducted. Efficacy was perceived as being an important influence upon the motivation of teachers and their contribution to new programmes. Comments were made about it being 'characteristic of most of the staff' and 'an essential teacher attribute for working with the type of students in the school'.

Evidence was provided of an emphasis on learning within the school. Positive comments were made about the level of participation of teachers in school programmes focussing on improving the literacy of students and the utilisation of 'student centred' teaching strategies in the

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classroom. The engagement of some teachers in tertiary study was also identified. Collegiality was identified by all the interviewees as being well developed throughout the school. Collaboration was perceived as being another characteristic of the school, although in one faculty, a lack of formal meetings was suggested as making it 'informal'.

Shared planning was generally considered to be a weak feature of the school. Comments on shared planning included: 'our faculty should have been given more consideration'; 'shared visions, are these from the administration, when are they decided upon?'; 'we are isolated and let down by other parts of the school'; 'school-wide planning links are not there, only when required by the administration' and 'at times we are isolated'. Transformational leadership was also generally considered lacking. Comments about leadership included; 'the leadership is not concerned with the rest of the school'; 'the leadership pulls rank'; 'transformational leadership in the school is lacking'; and 'we don't get a say in what happens'. These views of the non-transformative style of the school leadership are consistent with the perceptions of a low level of shared planning in the school.

The overall findings of interviewing Woodview SHS teachers were that relatively high levels of teacher efficacy, an emphasis on learning, collegiality and collaboration were characteristic of their school culture. Alternatively, shared planning and transformational leadership were not identified as strong features.

Faculty Cultures

Figure 2 presents the scale mean scores for the Woodview SHS faculties. The overall pattern of faculty culture profiles is consistent with the school profile presented in Figure 1, however it does reveal differences between the four faculties. The English faculty profile is indicative of a less well developed culture. This was confirmed during interviewing by comments including 'informal collaboration', 'cliquey collegiality' and 'individualism'. In comparison, the Social Studies faculty was described as having 'implicit collegiality, collaboration and shared planning'.

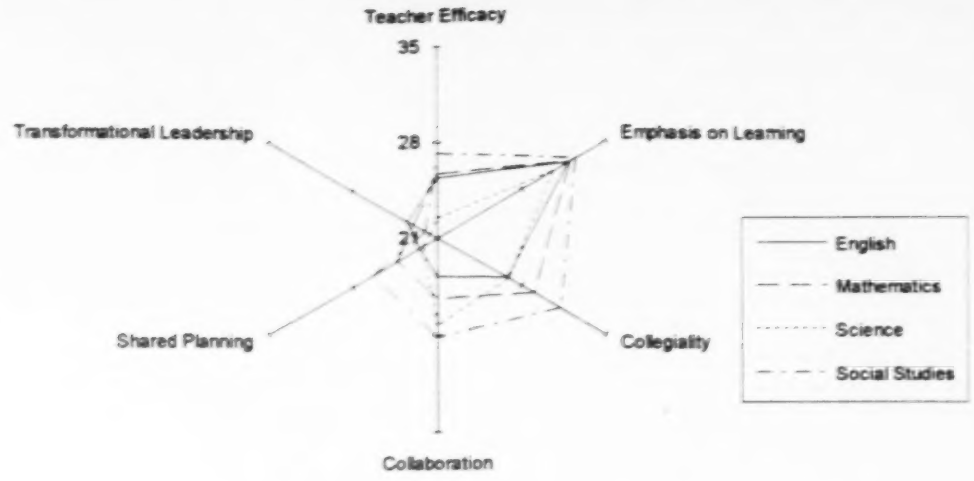

Figure 2. Woodview SHS Faculty Culture Profiles

Stability of School Culture

Figure 3 presents the scale mean scores for Woodview SHS in 1995 and 1996. Figure 4 presents the mean inter-scale correlation coefficients for 1995 and 1996.

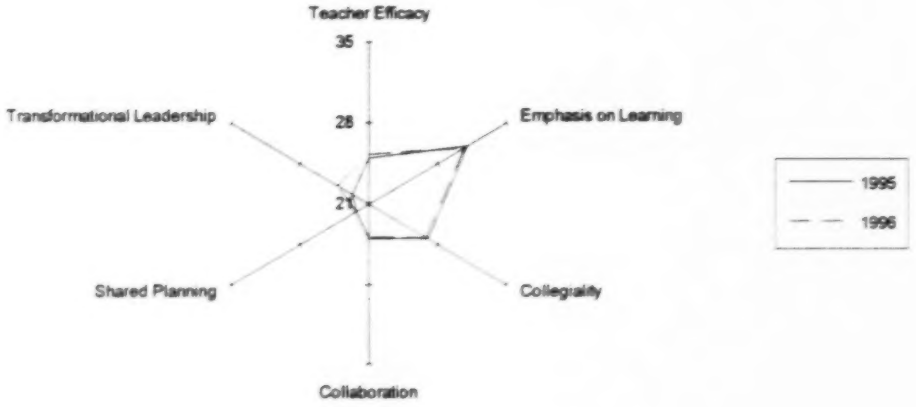

Figure 3. Woodview SHS Culture Profiles 1995 and 1996

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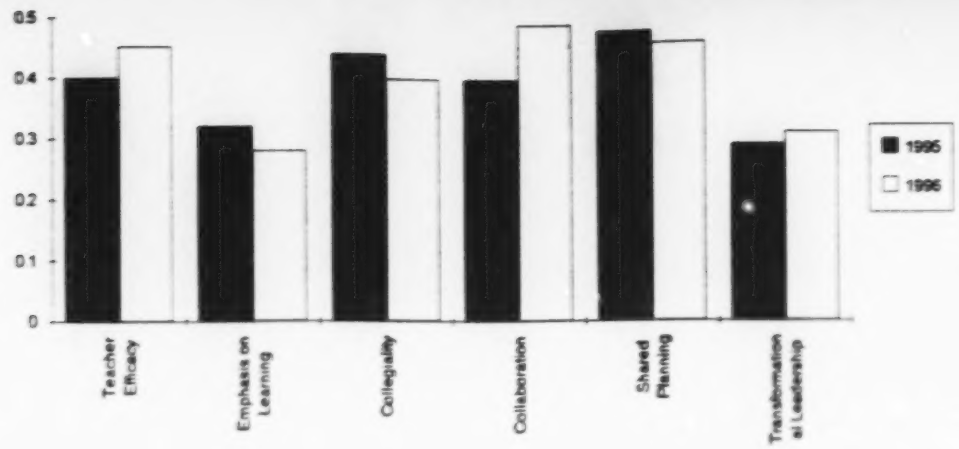

Figure 4. Woodview SHS Cultural Element Influences for 1995 and 1996

Both figures reveal that the culture of Woodview SHS was relatively stable over the period of investigation. Figure 3 indicates an improvement in transformational leadership which was confirmed by single factor Annova analysis of variance, significance level of 0.04. The SCEQ results were confirmed during interviewing. Comments about changes in the school's culture included, 'possibly not changed'; 'nope'; 'same'; 'not to a large degree'; 'not particularly, not dramatic'; hasn't changed much'; 'no manifestation of improvement or regression'; and 'no'. The change in transformational leadership was described as a result of the school administration being 'more concerted, less divisive and apparently more united' than in the previous year.

CASE TWO: LANDVIEW SENIOR HIGH SCHOOL

Landview Senior High School is located in the North-west of the state about 2000 kilometres from Perth, the state capital. In 1995 the school had 600 students in Years Eight to Twelve and 50 teachers in subject centred faculties. The student population is multi-racial with a relatively high proportion of students of Aboriginal or Asian descent. The academic performance of the students is generally lower than in most Western Australian secondary schools. The annual turn-over of teaching staff is approximately 40% with the majority of replacement staff being graduate teachers. Of the total school staff, approximately 50% were in their first three years of teaching.

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Staff welfare, support for inexperienced teachers who were isolated from their families and the professional networks available in Perth was a major concern in the school. Another priority of the school was centred upon the needs of the student body. Considerable effort was made towards improving levels of literacy and the development of socially acceptable patterns of behaviour and interaction. The student body contained a significant number of students who displayed anti-social behaviour and disrupted classroom instruction and school activities. In 1995, the work of the principal and two deputy principals was dominated by disciplinary action directed at this group of students. The school administration was experiencing stress from this role and the requirements of their normal administrative duties.

School Culture

Figure 4 presents the scale mean scores for Landview SHS. In comparison to the Woodview data, Landview SHS had lower levels of teacher efficacy, collegiality and collaboration. These differences were confirmed by single factor Annova analysis of variance including multiple range testing (Least Significant Difference Test). Apart from an emphasis on learning, the other elements were similar.

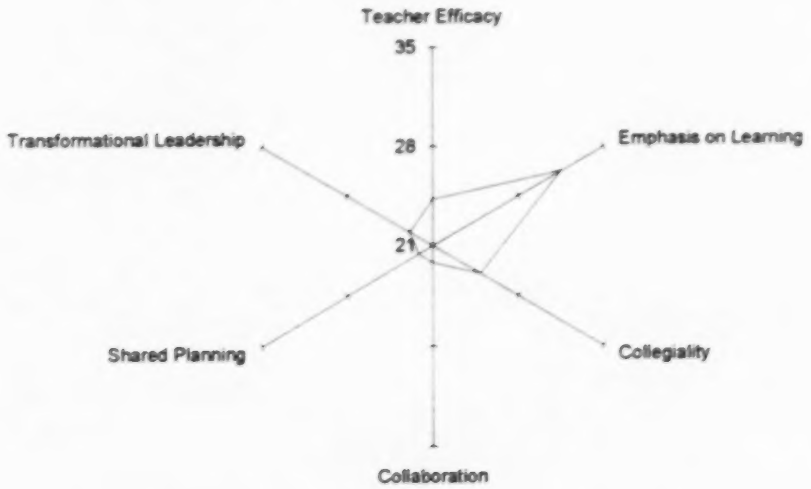

Figure 5. Landview SHS School Culture Profile

The interview findings on teacher efficacy at Landview SHS in 1995 were inconclusive. Only three interviewees commented upon this cultural element. Two of these teachers who were

from the same faculty made positive comments, one from a different faculty suggested teacher efficacy was lacking in the school. An emphasis on learning was generally perceived as being characteristic of teachers at Landview SHS in 1995 by interviewees from three of the four faculties. The exception was the Social Studies faculty in which the professional growth of teachers was suggested as being low.

Collegiality was generally identified as an important aspect of the school's culture by interviewees from all four faculties, 'the turmoil brought people together'. However this response was not uniform. Within the English faculty, one interviewee considered collegiality to be restricted to 'small groups or pockets'. Collegiality within the Social Studies faculty was suggested by one teacher as being fragmented, 'a two to three split' and another stated that in 1995, 'it was a nightmare'. Perceptions of collaboration were similar to those of collegiality. It was suggested as being widespread but not uniform. Positive comments included; ' we have effective meetings', 'it allows us to vent our feelings', and 'it is especially strong with graduates'. Again, the Social Studies faculty was the exception. 'no collaboration', and 'minimal collaboration, the head of department directed the student assessment policy' Interview findings on shared planning indicated that it was essentially restricted to faculty level planning and short term goals. The high staff turn-over and problems with students were identified as a restriction on long term planning and visions, 'our shared vision was of survival, coping with violence', and 'we attempt school-wide planning, but are just re-arranging the deck chairs'. Perceptions of transformational leadership within the school were varied. Science faculty interviewees identified its presence and English faculty teachers commented 'we were told what to do to a point', 'not strong at the start but improved', and 'it was there last year'. Another interviewee stated that 'the school was out of control and there was lots of imposed changes'.

The interview results from Landview SHS suggested that the culture of the school was characterised by varied levels of an emphasis on learning, collegiality and collaboration. Evidence of the presence of the other cultural elements was limited. In general, the variations in the interview data which were evident for the more prominent cultural elements is suggestive of an overall school culture in 1995 which was not well developed.

Faculty Cultures

Figure 6 presents the faculty data for Landview SHS. To accommodate the low scores on some of the scales, the minium score has been set at 14.

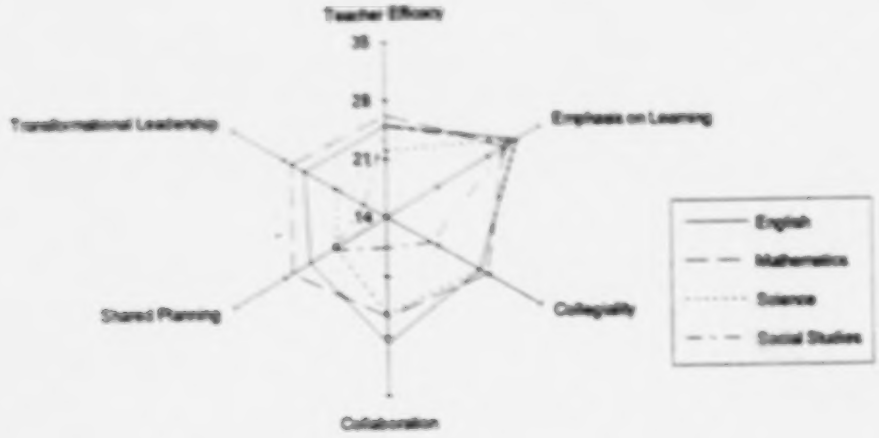

Figure 6. Landview SHS Faculty Sub-Culture Profiles

The Social Studies data requires explanation. Interviews revealed that this faculty was disunited with a lack of collegiality and collaboration. The head of department was a long-standing member of the school staff who considered his own knowledge and experience to be superior to that of his sub-ordinates. His leadership style was essentially authoritarian, characterised by a lack of consultation and unilateral decision-making. Specific examples of corroborative comments from the Social Studies faculty interviewees were provided in the previous section.

Stability of School Culture

The culture of Landview SHS underwent significant changes from 1995 into 1996. Figure 7 is a comparison of the scale mean scores for 1995 and 1995. With the exception of emphasis on learning, all of the cultural elements were stronger in 1996 than in 1995. Single factor Annova analysis of variance identified statistically significant changes for three of the cultural elements. The change in the emphasis on learning in the school had a significance level of 0.002, the collaboration level was 0.059 and transformational leadership level was 0.008.

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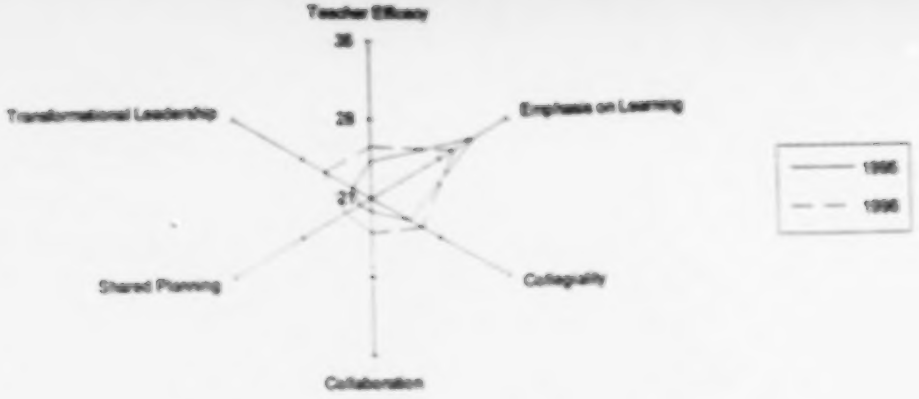

Figure 7. Landview SHS Culture Profiles for 1995 and 1996

The changes in the SCEQ results were confirmed during the interviews. The student behaviour management problems facing the school in 1995 were addressed by the administration in their planning for 1996. This resulted in more positive perceptions of leadership support by the teachers and also enabled the energies of all school staff to be re-directed into other aspects of the school's operations. The decrease in the emphasis on learning is likely due to an increase in school-wide activity in comparison to the 1995 situation which student learning centred upon work occurring in individual classrooms. This explanation is supported by the large increase in the mean inter-scale correlation value for the emphasis on learning element presented in Figure 8.

The mean inter-scale correlation coefficients for Landview SHS all increased from 1995 to 1996. Apart form the emphasis on learning, the increased levels of the cultural elements presented in Figure 7 were accompanied by stronger inter-relationships between the elements. The higher correlation values suggest that the 1996 school culture resulted from strong contributions from all six elements. This finding is also consistent with the Landview SHS interview data which provided evidence of cultural growth over the period of investigation.

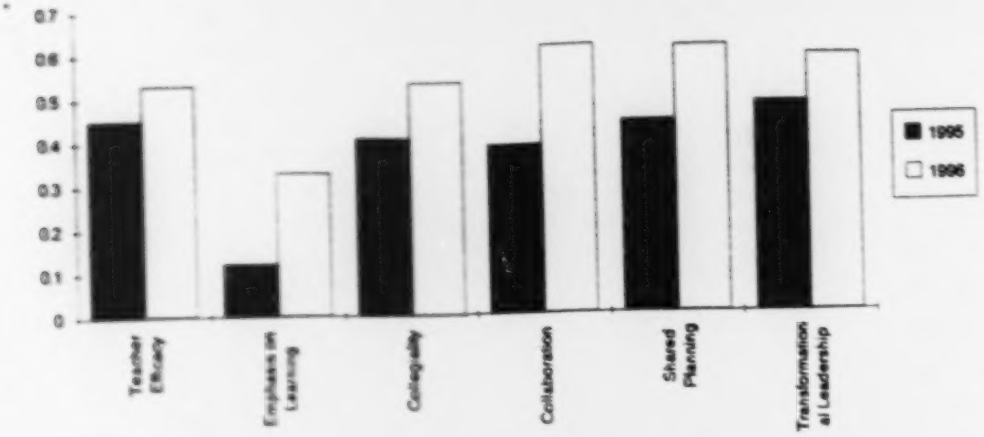

Figure 8. Landview SHS Cultural Element Influences for 1995 and 1996

The majority of the Landview SHS interviewees commented on how the school had changed from 1995 to 1996. They identified higher levels of the cultural elements within their faculties and across the whole school.

Two new deputy principals were appointed to the school in 1996. They were perceived by teachers as being 'stronger', 'more supportive' and 'more empowering' than their predecessors. Other comments included: 'we are given more freedom and responsibility'; 'praise and support is provided'; ' strength at the top'; 'staff have improvement opportunities'; 'enthusiasm is provided'; things are better linked together'; and 'they spend time helping and talking with us'. Another change at Landview SHS was the development of a school-wide programme for managing the behaviour of students (MSB). This was planned in 1995 and resulted in the creation of a new senior position in 1996 with a role statement centred upon coordinating and enforcing student discipline school-wide. The MSB programme coordinator worked closely with the deputy principals and this collaboration was seen as a contribution to more cohesive school leadership.

The interviewees also commented upon increased levels of the other five cultural elements in 1996; 'collaboration includes more from individual teachers'; 'a more positive environment'; 'more empowerment'; 'a shared vision has developed'; 'less cliques, more collegiality'; 'overall culture is developing'; 'school-wide planning has increased'; 'increased efficacy'; and 'more

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inter-faculty collaboration'. All of the teachers interviewed considered that the school culture had changed. This unequivocal finding is indicative of Landview SHS having undergone a major cultural transformation.

Conclusions

The theoretical framework of six cultural elements was developed from the literature on school effectiveness. The elements are all aspects of school culture which are expected to be conducive to improved student learning outcomes. Accordingly, these elements require consideration in the design and implementation of school improvement programmes. Incorporation of cultural transformation strategies in school improvement programmes ensures effectiveness of the improvement initiative by facilitating changes in the professional values and norms of teachers.

Utilisation of the School Cultural Elements Questionnaire to profile the culture of a school provides administrators and teachers with information about their school related to student learning. The instrument has proven to be sufficiently reliable and sensitive to differentiate between the cultures of different schools and to measure cultural change. Although the instrument solicits teachers' perceptions of their school's culture, the aggregated data is relatively impersonal and provides an objective means of examining aspects of the school which are of a potentially sensitive nature. The SCEQ data can be used to examine the readiness of a school for improvement and if the instrument is re-administered after improvement programme implementation, the outcomes of the programme.

The six element theoretical framework upon which the instrument is based has been utilised in conjunction with SCEQ administration for school improvement activities in Western Australian schools. The operational definitions and SCEQ data were easily understood by administrators and classroom practitioners. The radial format of the school culture profiles was an effective means of data presentation and is consistent with the notion of cultural development. Well developed cultures had a symmetrical profile situated at the extremities of the six axes. Cultural growth was evidenced by progression outwards from the centre of the graph.

The adoption of a quantitative perspective in studying the subjective phenomenon of school culture is of consequence for school development. This approach provides educators and researchers with a simple and reliable means of obtaining important information about the beliefs and attitudes of teachers and the processes by which these can be transformed to improve the school.

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Appendix 1. Reliability and Construct Validity of Revised SCEQ

Scale	Internal Reliability of Scales (Cronbach Alpha) (n = 422)	Mean Correlations with other Scales (Spearman) (n = 422)
Teacher Efficacy	0.71	0.40 - 0.74
Emphasis on Learning	0.75	0.12 - 0.58
Collegiality	0.72	0.40 - 0.71
Collaboration	0.70	0.39 - 0.76
Shared Planning	0.81	0.44 - 0.84
Transformational Leadership	0.74	0.29 - 0.84